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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,207	03/24/2000	Makoto Kashiwaya	Q55902	2981

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EXAMINER
DEO, DUY VU NGUYEN

ART UNIT	PAPER NUMBER
1765	16

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/534,207	Applicant(s) KASHIWAYA ET AL
	Examiner DuyVu n Deo	Art Unit 1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☒ Claim(s) *7, 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

In response to the appeal brief filed 1/14/03, the final office action sent on 11/14/02 is withdrawn. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (US 4,816,113) and Kitsunai et al. (US 6,186,153).

Yamazaki teaches a method for forming a carbon layer by vapor phase deposition comprising steps of: cleaning the apparatus by removing undesirable products such as carbon deposition from the inside of the chamber (in between the carbon deposition or this would means the cleaning is performed before another deposition); the chamber is then evacuated to $1x10^{-6}$Torr or a higher vacuum condition; starting a film deposition process of the carbon (col. 5, line 41-col. 6, line 2; col. 3, line 41-col. 4, line 2). Unlike claimed invention, Yamazaki doesn't describe adjusting the content of particles having a particle size of 0.5 um or more to 1000 particles/ft^3/min or less (such as 500 or 100 particles/ft^3/min). However, to have a clean chamber before any deposition process is a well-known step to one skilled in the art as shown by Yamazaki's cleaning step. Also as shown here by Kitsunai where he teaches of cleaning any possible dust or contamination from the chamber so that they do not cause defects on the devices

being manufactured (col. 1, line 14-40; col.2 line 40-47). Therefore, it would have been obvious at the time of the invention for one skilled in the art to removed any dust, particles, which would includes any particles having size of 0.5 um or more, so that they do not cause defects on the devices being manufactured.

Referring to claim 3, the application of deposition of carbon layer as a protective layer on a thermal head performing thermal recording is known to one skill in the art as described in the background of the specification.

Referring to claims 5 and 6, forming a thermal head having a 3 protective layers including a lower, intermediate, and carbon layer are well known to one skill in the art as described in page 8 of the specification. The thickness of each layer would have been obvious to determined through test runs in order to provide optimum thickness of each layer for protection of the thermal head with an anticipation of an expected result.

Allowable Subject Matter

3. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 7 and 8 are allowable because applied prior art doesn't describe the carbon, intermediate, and lower protective layer are successively formed on the thermal head under a continuous vacuum.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 703-305-0515.

DVD
February 27, 2003

BENJAMIN L. UTECH
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